

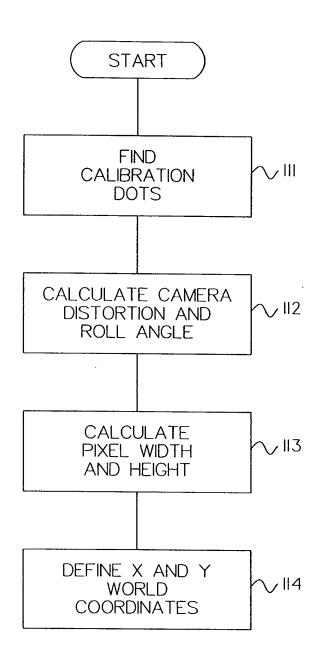
<u>fig</u>_1B



START $\sqrt{|0|}$ PROVIDING A TRANSPARENT RETICLE HAVING A BOTTOM SURFACE WITH A PATTERN OF PRECISION DOTS. PROVIDING A CAMERA DISPOSED BENEATH THE √ 102 TRANSPARENT RETICLE TO RECEIVE AN IMAGE OF THE DOT PATTERN WHEREIN THE CAMERA PROVIDES THE IMAGE DATA. $\sqrt{103}$ PROVIDING A FRAME GRABBER BOARD TO RECEIVE THE IMAGE DATA. $\sqrt{104}$ PROCESSING THE IMAGE DATA WITH A PROCESSOR TO CALCULATE THE STATE VALUES OF THE BOTTOM VIEW.

Fig_ 2A





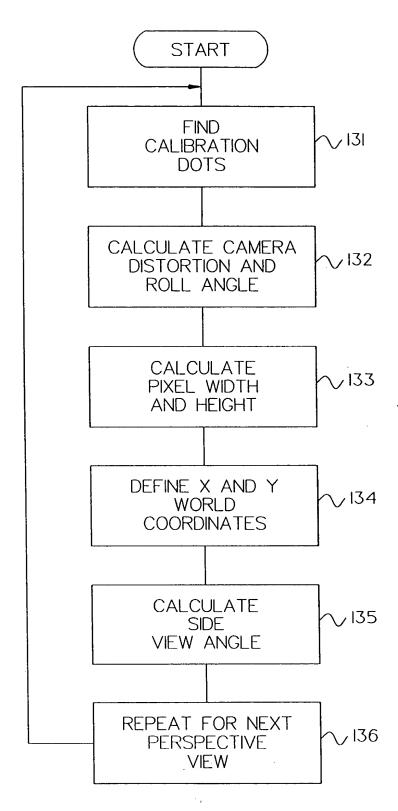
Fig_2B



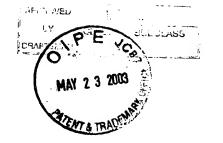
START PROVIDING A TRANSPARENT RETICLE HAVING A BOTTOM SURFACE WITH A PATTERN OF PRECISION DOTS. √ I22 PROVIDING FIXED OPTICAL ELEMENTS FOR OBTAINING SIDE PERSPECTIVE VIEWS. $\sqrt{123}$ PROVIDING A CAMERA DISPOSED TO RECEIVE AN IMAGE OF SIDE PERSPECTIVE VIEWS REFLECTED FROM OPTICAL ELEMENTS. PROVIDING A FRAME GRABBER BOARD TO RECEIVE THE IMAGE DATA. PROCESSING THE IMAGE DATA WITH A PROCESSOR TO ∖∠125 CALCULATE THE STATE VALUES OF THE SIDE PERSPECTIVE VIEWS.

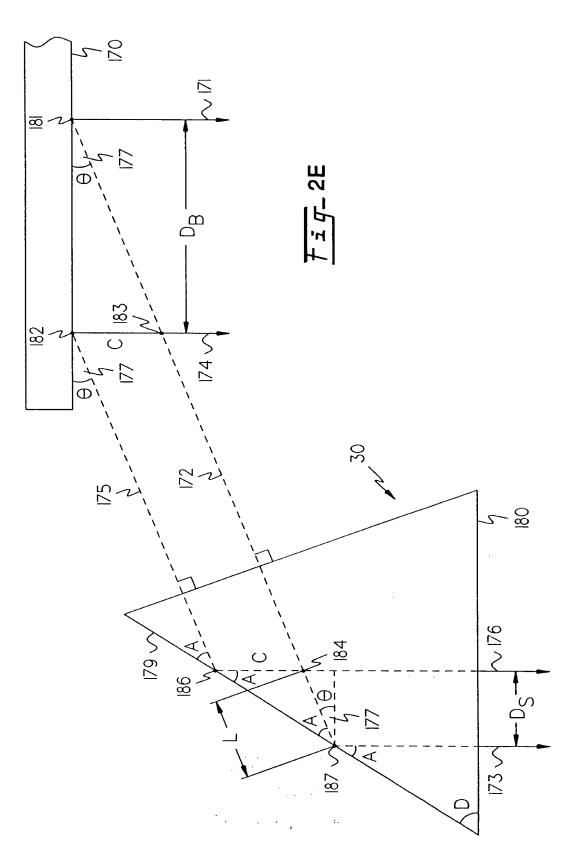
Fig_ 20



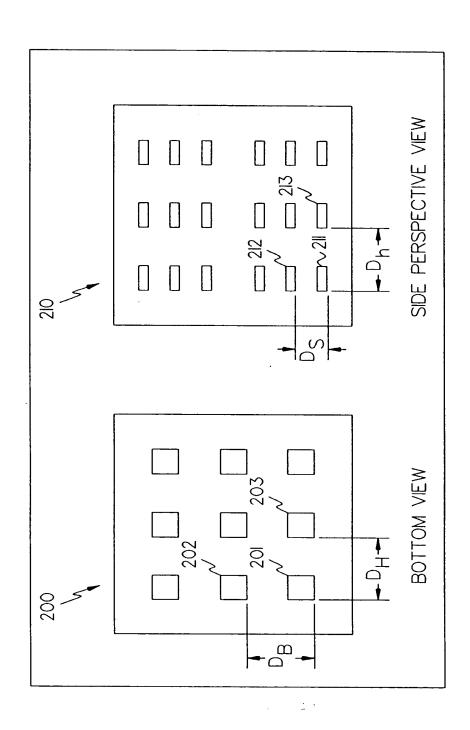


<u>Fig</u>_2D



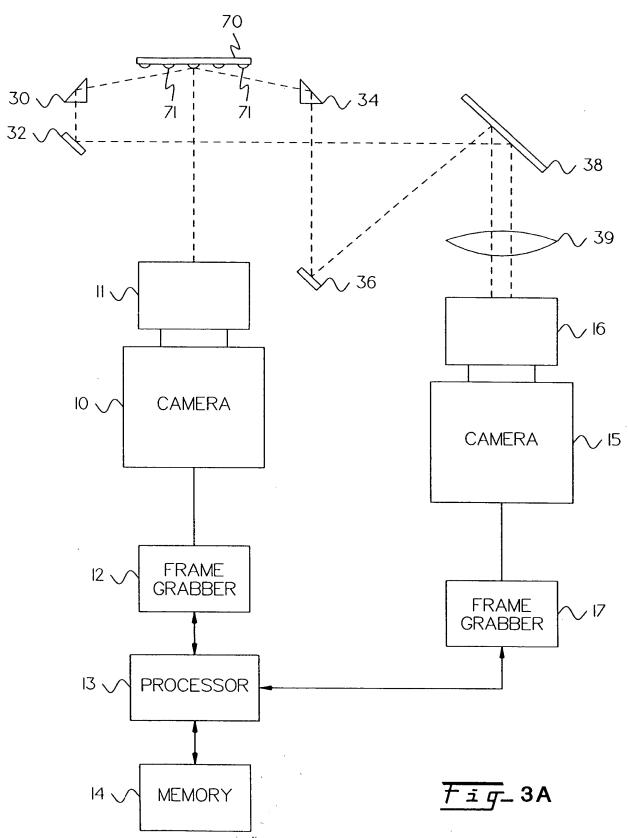




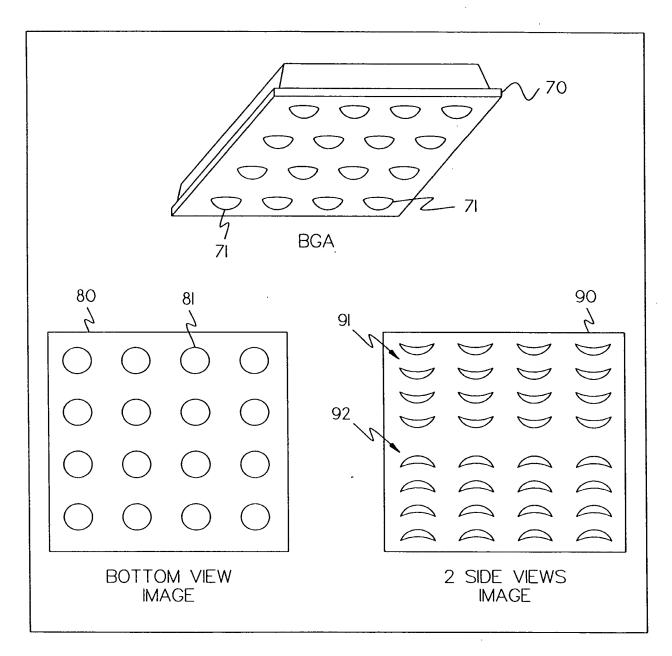


F = q-2F









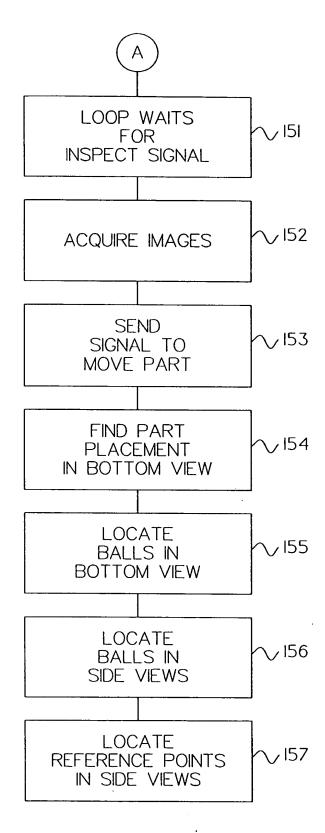
*† i g*_ 3B



START 141 PROVIDING A PART HAVING BALLS FACING DOWN FOR INSPECTION. PROVIDING A CAMERA DISPOSED BENEATH THE CENTRAL 1/142 AREA OF THE PART TO BE INSPECTED. $\sqrt{143}$ PROVIDING A FRAME GRABBER BOARD TO RECEIVE THE BOTTOM VIEW IMAGE DATA. V144 PROVIDING FIXED OPTICS FOR PROVIDING TWO SIDE PERSPECTIVE VIEWS OF THE PART. 145 PROVIDING A CAMERA TO RECEIVE THE TWO SIDE PERSPECTIVE VIEWS OF THE PART. 1/146 PROVIDING A FRAME GRABBER BOARD TO RECEIVE THE SIDE PERSPECTIVE IMAGE. $\sqrt{147}$ PROCESSING THE IMAGE DATA TO PROVIDE A THREE DIMENSIONAL ANALYSIS OF THE PART.

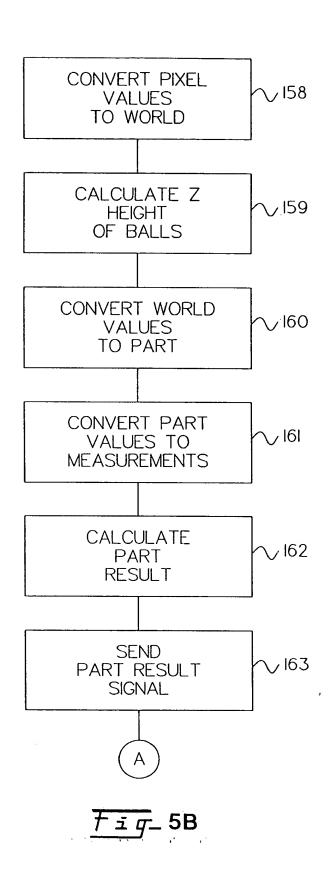
Fig-4



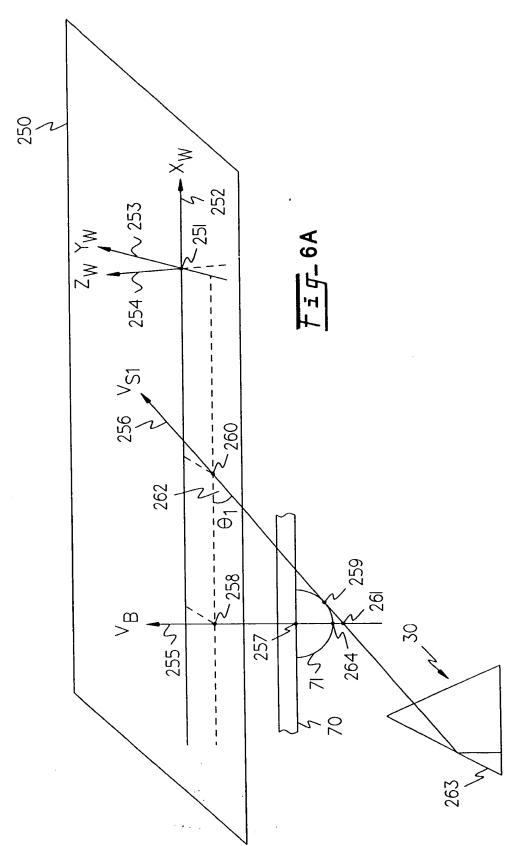


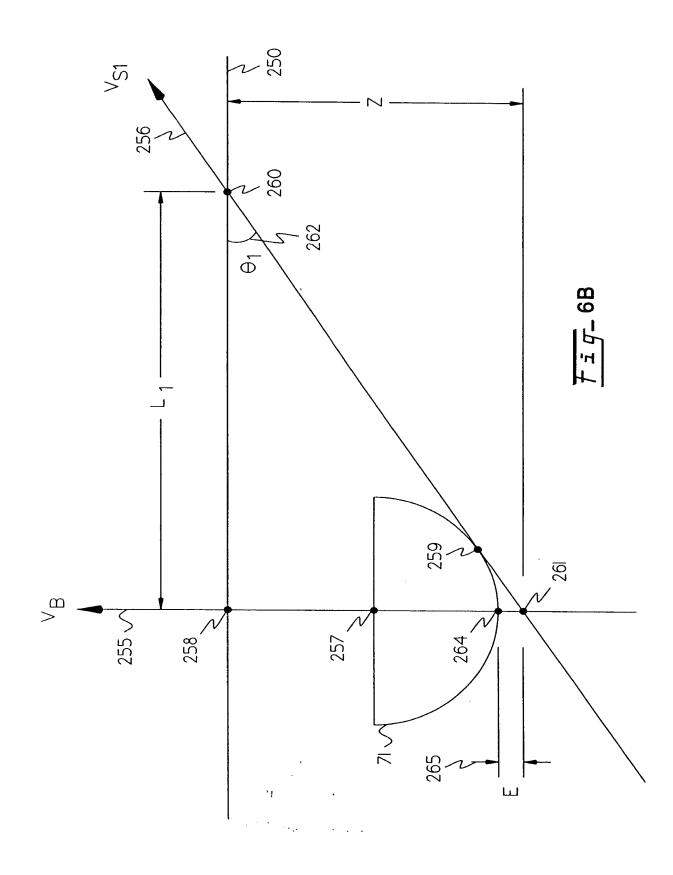
<u>Fig</u>_5A



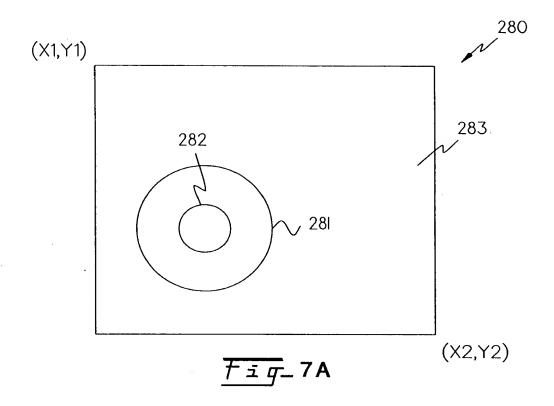


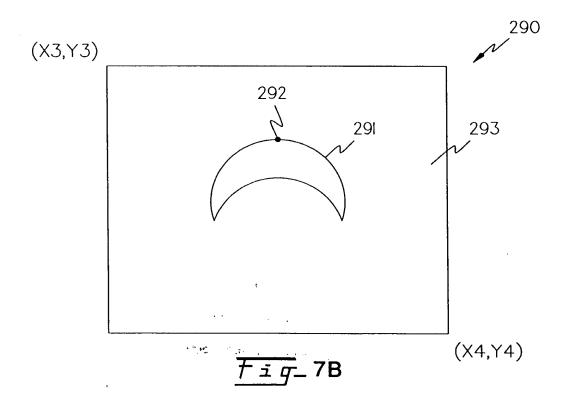




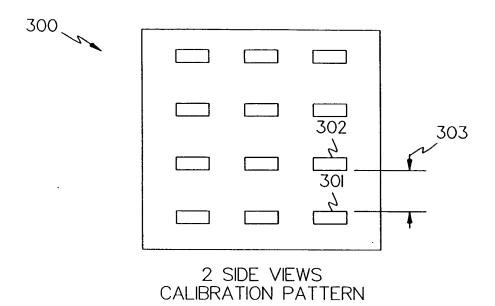




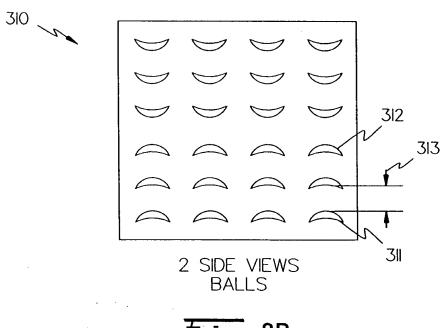






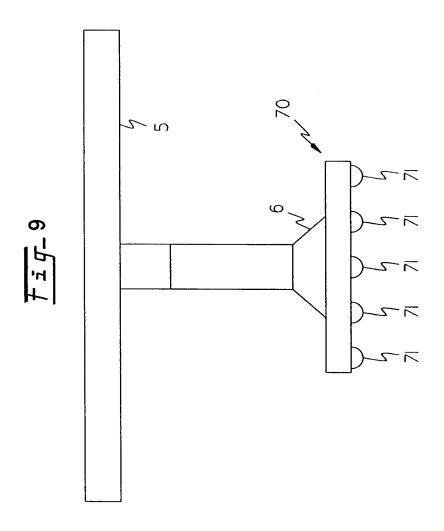


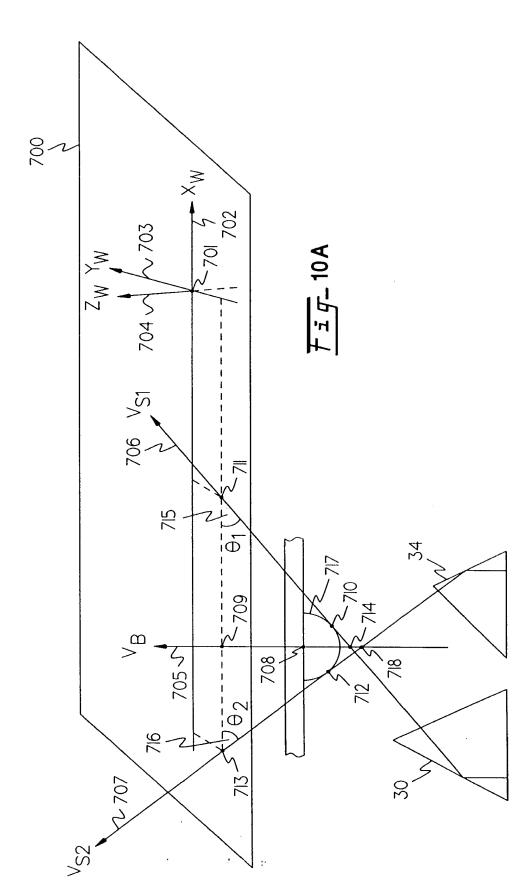
Fig_8A



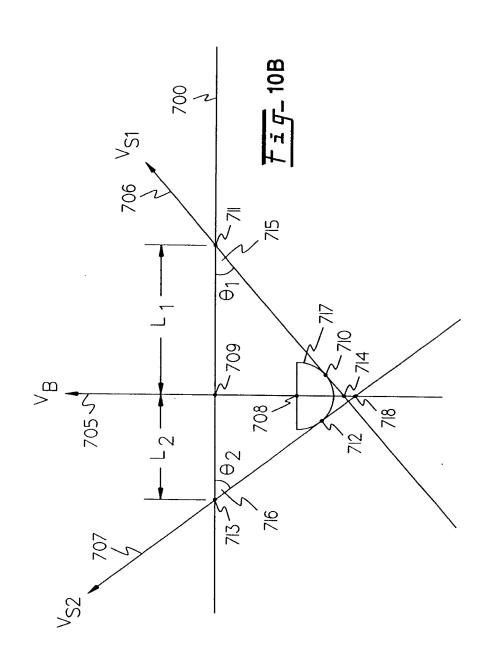
i g_ 8B



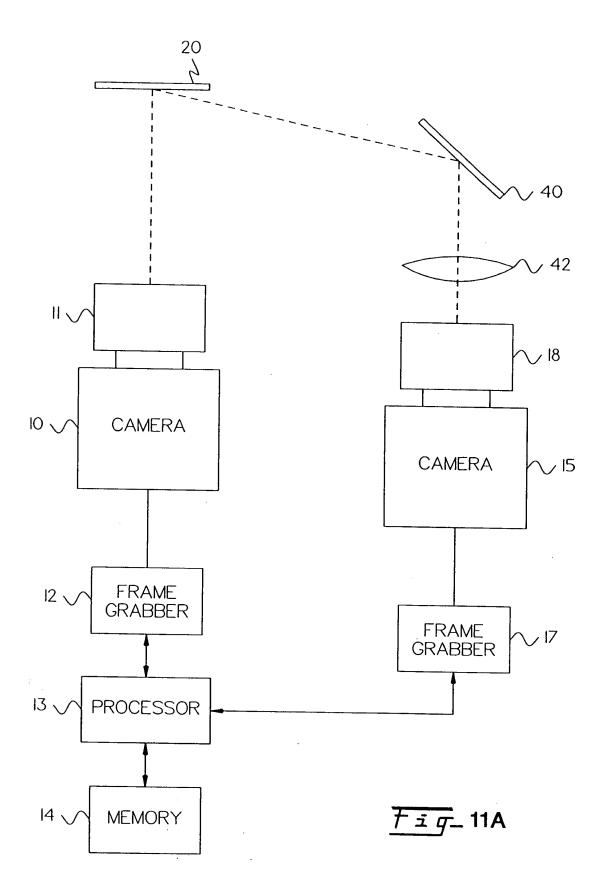










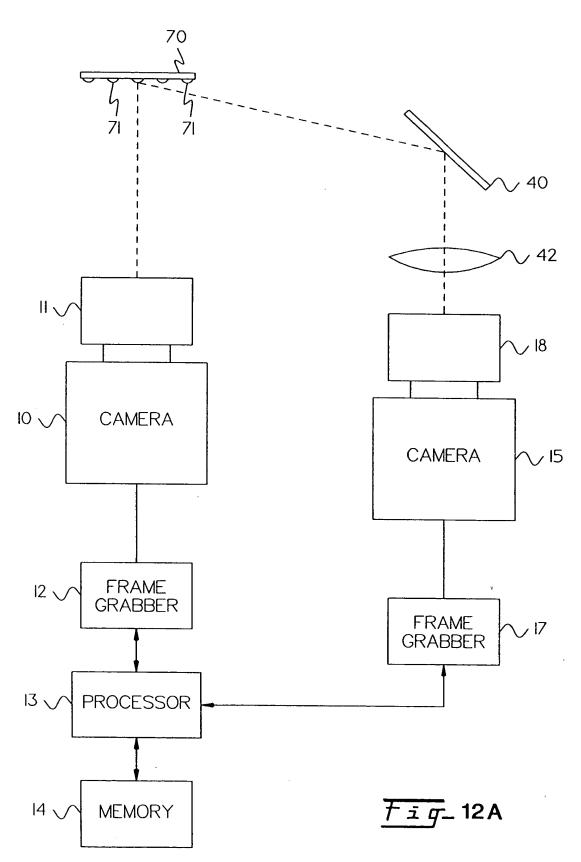




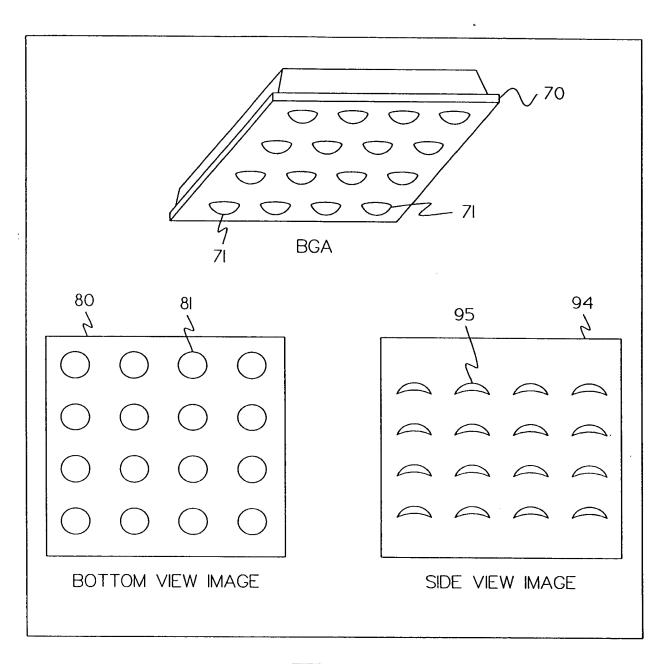
20 / / / / 22 // / / / 22 CALIBRATION RETICLE	
52 2	65
BOTTOM VIEW IMAGE	SIDE VIEW IMAGE

<u>Fig</u>_11B



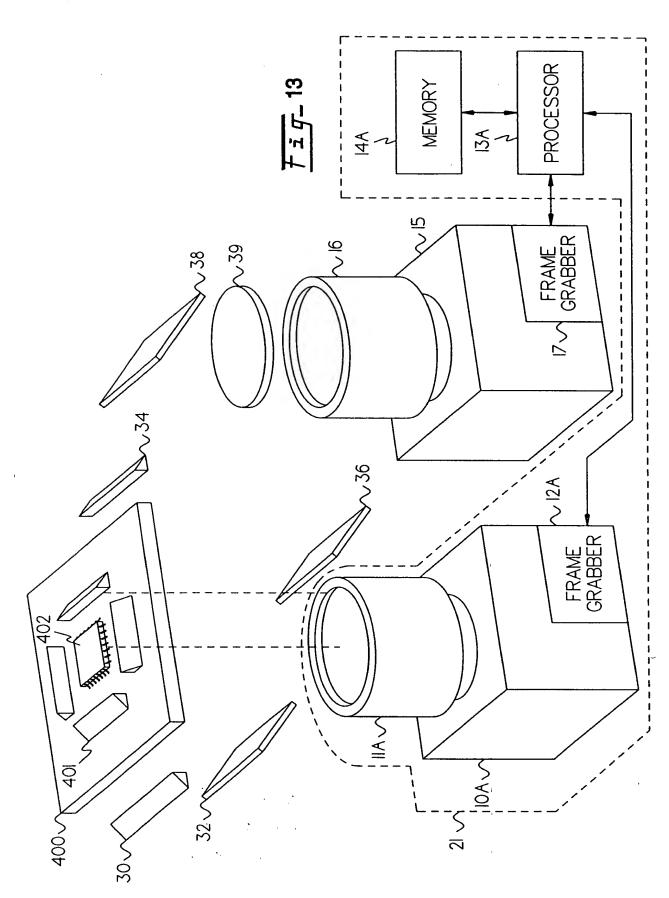




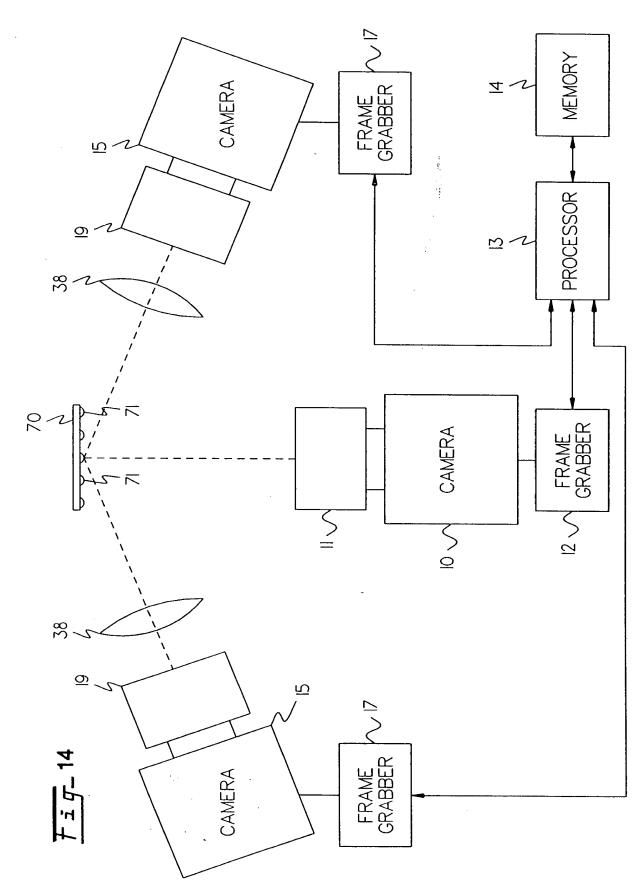


Fig_ 12B











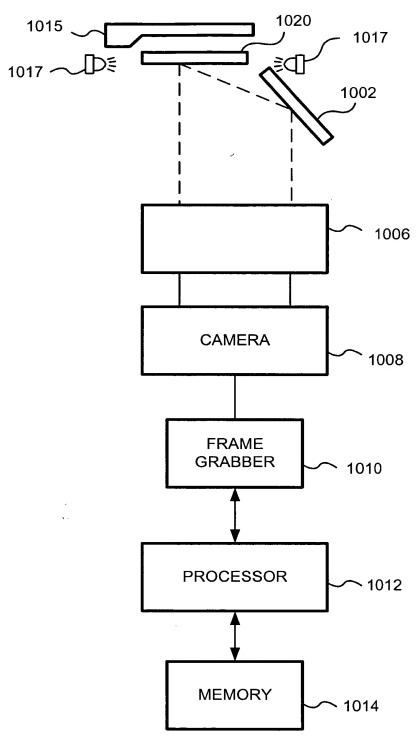
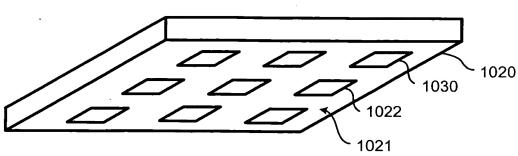


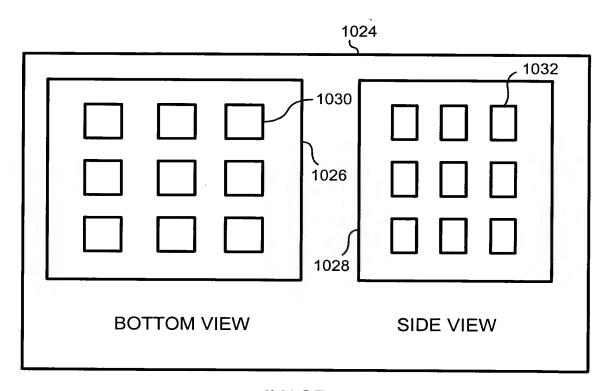
FIG. 15





CALIBRATION RETICLE

FIG. 16A



IMAGE

FIG. 16B



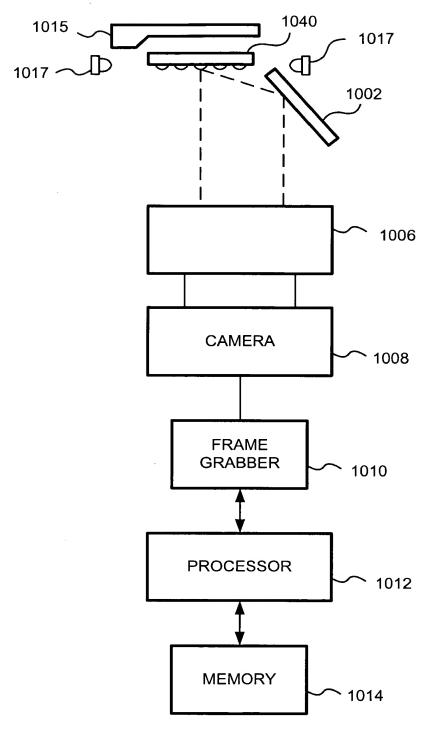


FIG. 17

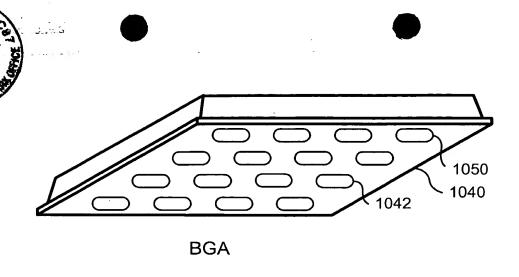
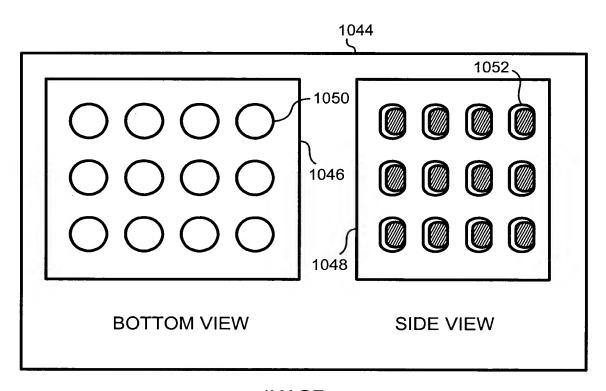


FIG. 18A



IMAGE

FIG. 18B